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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A routing component of a router comprising:

a first interface to communicate data with a ~~first~~ network ~~interface~~;

a second interface to communicate data to a second routing component using a switch internal to the router ~~with a second network interface having a bandwidth higher than a bandwidth of the first network interface~~, wherein the first interface and the second interface are integrated within a single integrated circuit;

an embedded memory within the integrated circuit;

a memory interface to couple the integrated circuit to an external memory; and

at least one control unit that receives data from the network via the first interface and accesses a forwarding table to determine a network destination for the data;

~~determines a direction of communication for the data between the first network interface and the second network interface,~~

wherein the control unit buffers the data using the embedded memory internal to the integrated circuit when the destination requires forwarding the data to the second routing component of the router using the switch ~~is communicated in a first direction from the first interface having the lower bandwidth to the second interface having the higher bandwidth~~, and

wherein the control unit buffers the data in the external memory when the destination requires forwarding the data to the network via the first interface ~~data is communicated in a second direction from the second interface having the higher bandwidth to the first interface having the lower bandwidth~~.

Claim 2 (Previously Presented): The routing component of claim 1, wherein the at least one control unit comprises:

a first control unit to buffer in the embedded memory data that is received from the first interface and forwarded to the second interface; and

a second control unit to buffer in the external memory data that is received from the second interface and forwarded to the first interface.

Claim 3 (Original): The routing component of claim 2, wherein the external memory has a greater storage capacity than the embedded memory.

Claim 4 (Original): The routing component of claim 1, wherein the first interface comprises a wide area network (WAN) interface.

Claim 5 (Original): The routing component of claim 1, wherein the second interface comprises a switch fabric interface.

Claim 6 (Original): The routing component of claim 5, wherein the switch fabric interface communicates crossbar data.

Claim 7 (Previously Presented): The routing component of claim 1, wherein the routing component is implemented using a single application specific integrated circuit (ASIC).

Claim 8 (Original): The routing component of claim 1, wherein the embedded memory comprises a random access memory (RAM).

Claim 9 (Currently Amended): A network element comprising:

a first network interface to communicate data with a network ~~at a first bandwidth~~;

a second network interface to communicate data with the network ~~at a second bandwidth higher than the first bandwidth~~;

a routing component formed in an integrated circuit, wherein the routing component has an embedded memory within the integrated circuit; and

a second memory external to the routing component,

wherein the routing component receives data from the first network interface and accesses a forwarding table to determine a network destination for the data ~~determines a direction of communication for the data between the first network interface and the second network interface~~,

wherein the routing component buffers data ~~communicated in a first direction from the first network interface having the lower bandwidth to the second interface having the higher bandwidth~~ in the embedded memory internal to the routing component when the destination requires forwarding the data to a second routing component using a switch internal to the network element, and

wherein the routing component buffers data communicated ~~in a second direction from the second interface having the higher bandwidth to the first interface having the lower bandwidth~~ in the second memory external to the routing component when the destination requires forwarding the data to the network via the first network interface.

Claim 10 (Cancelled).

Claim 11 (Previously Presented): The network element of claim 9, wherein the second memory has a greater storage capacity than the embedded memory.

Claim 12 (Previously Presented): The network element of claim 9, wherein the first network interface and the second network interface comprise wide area network (WAN) interfaces.

Claim 13 (Currently Amended): The network element of claim 9, further comprising a crossbar switch fabric coupling the routing component to a second routing component.

Claim 14 (Previously Presented): The network element of claim 13, wherein the switch fabric communicates crossbar data.

Claim 15 (Previously Presented): The network element of claim 9, wherein the routing component is implemented using an application specific integrated circuit (ASIC).

Claim 16 (Original): The network element of claim 9, wherein the embedded memory comprises a random access memory (RAM).

Claim 17 (Currently Amended): The network element of claim 9, wherein the ~~further comprising a~~ second routering component includes ~~having~~ an embedded memory to store data communicated using the second network interface.

Claim 18 (Currently Amended): An integrated circuit (IC) comprising:

a first interface to communicate data with a network at a first data rate;

a second interface to communicate data with a switch fabric ~~the network~~ at a second data rate higher than the first data rate;

an embedded memory internal to the IC;

an interface to a memory external to the IC; and

at least one control unit that receives data from the first interface and accesses a forwarding table to determine a network destination for the data ~~determines a direction of communication for the data between the first network interface and the second network interface~~,

wherein the control unit buffers data in the embedded memory internal to the integrated circuit when the destination requires forwarding the data using the switch fabric ~~data is communicated in a first direction from the first interface having the lower data rate to the second interface having the higher data rate~~, and

wherein the control unit buffers the data using the external memory when the destination requires forwarding the data out to the network via the first interface ~~data is communicated in a second direction from the second interface having the higher data rate to the first interface having the lower data rate~~.

Claim 19 (Original): The IC of claim 18, wherein the memory external to the IC has a greater storage capacity than the embedded memory.

Claim 20 (Original): The IC of claim 18, wherein the first interface is coupled to a wide area network (WAN) interface.

Claim 21 (Cancelled).

Claim 22 (Currently Amended): The IC of claim 18~~21~~, wherein the switch fabric comprises a crossbar.

Claim 23 (Original): The IC of claim 18, wherein the embedded memory comprises a random access memory (RAM).

Claim 24 (Currently Amended): A router comprising:

an integrated circuit (IC) comprising:

a first interface to communicate data with a network ~~having a first bandwidth~~;

a second interface to communicate data with a switch fabric internal to the router ~~with the network having a second bandwidth higher than the first bandwidth~~;

an embedded memory; and

an interface to a memory external to the IC; and

at least one control unit that receives data from the network via the first interface and accesses a forwarding table to determine a network destination for the data ~~determines a direction of communication for the data between the first network interface and the second network interface~~,

wherein the control unit buffers the data using the embedded memory internal to the integrated circuit when the destination requires forwarding the data to a routing component of the router using the switch fabric ~~data is communicated in a first direction from the first interface having the lower bandwidth to the second interface having the higher bandwidth~~, and

wherein the control unit buffers the data in the external memory when the destination requires forwarding the data to the network via the first interface ~~data is communicated in a second direction from the second interface having the higher bandwidth to the first interface having the lower bandwidth~~.

Claim 25 (Original): The router of claim 24, wherein the memory external to the IC has a greater storage capacity than the embedded memory.

Claim 26 (Original): The router of claim 24, wherein the first interface is coupled to a wide area network (WAN) interface.

Claim 27 (Cancelled).

Claim 28 (Currently Amended): The router of claim 2426, wherein the switch fabric comprises a crossbar.

Claim 29 (Original): The router of claim 24, wherein the embedded memory comprises a random access memory (RAM).

Claim 30 (Previously Presented): A method for communicating data using a network router, the method comprising:

receiving inbound data from a network interface via a first routing component;

accessing a forwarding table with a control unit of the network router to determine a network destination for the data;

when the destination requires forwarding the data to a second routing component internal to the router using a switch having a higher bandwidth than the network interface, buffering the inbound data within an embedded memory internal to the first routing component;

forwarding the inbound data from the first routing component to a second routing component via the switch;

receiving outbound data with the first routing component from the switch;

when the destination requires forwarding the outbound data to the network interface having a lower bandwidth than the switch, buffering the outbound data within a memory external to the first routing component; and

forwarding the outbound data to the network interface.

Claim 31 (Previously Presented): The method of claim 30, wherein the external memory has a greater storage capacity than the embedded memory.

Claim 32 (Previously Presented): The method of claim 30, wherein the first network interface comprises a wide area network (WAN) interface.

Claim 33 (Canceled).

Claim 34 (Previously Presented): The method of claim 30, wherein the switch communicates crossbar data.

Claim 35 (Currently Amended): A routing arrangement comprising:

a crossbar arrangement;

a plurality of routing components coupled to the crossbar arrangement, at least a first one of the routing components comprising:

a first interface to communicate data with a network;

a second interface to communicate data with the crossbar arrangement~~, wherein the second interface has a bandwidth higher than a bandwidth of the first interface~~;

an embedded memory;

an external memory interface to a memory external to the routing component ; and

at least one control unit that receives data from the first interface and determines a network destination for the data ~~determines a direction of communication for the data between the first interface and the second interface~~,

wherein the control unit buffers the data using the embedded memory internal to the routing component when the destination requires forwarding the data to a second one of the routing components using the crossbar arrangement ~~the data is communicated in a first direction from the first interface having the lower bandwidth to the second interface having the higher bandwidth~~, and

wherein the control unit buffers the data in the external memory when the destination requires forwarding the data to the network via the first interface ~~data is communicated in a second direction from the second interface having the higher bandwidth to the first interface having the lower bandwidth~~.